



PATENT  
Attorney Docket N . 5725.0429-00  
Customer No. 22,852

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Marie-Pascale AUDOUSSET

Application No. 09/335,742

Originally filed: June 18, 1999

CPA Filed: April 10, 2001

For: DYE COMPOSITION CONTAINING  
1,8-BIS(2,5-DIAMINOPHENOXY)-3,6-  
DIOXA OCTANE, AN ADDITIONAL  
OXIDATION BASE AND A COUPLER  
AND DYEING PROCESS

Group Art Unit: 1751

Examiner: M. Einsmann

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DEC 31 2003  
TC 1700

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**DECLARATION UNDER 37 C.F.R. 1.132**

I, Marie-Pascale AUDOUSSET, declare and state that:

1. I am a French citizen, residing at 1 Allée Louis Jouvét, 92600 Asnières, France.
2. I have been awarded a degree in Chemical Engineering from the École Nationale Supérieure de Chimie de Paris, and am a Doctor In Organic Chemistry.
3. I have been employed by L'ORÉAL since 1986 and I am presently a Laboratory Supervisor of the hair dyeing research laboratory at L'ORÉAL. During my employment at L'ORÉAL, I have been engaged in research and development regarding hair dyeing.
4. I am the inventor of the above-identified application.

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5. Given my education and experience, particularly in the area of hair dyeing, I consider myself able to provide the following testimony based on experiments conducted by me or under my direct supervision.

### **COMPARATIVE TESTING**

6. Comparative testing was performed with inventive composition 1 and comparative composition 2.

#### **I. Compositions**

The formulations of compositions 1 and 2 are summarized in Table I, below.

Inventive composition 1 includes 4-aminophenol, which is one of the presently claimed oxidation bases. Comparative composition 2 includes 2-aminophenol, which is an additional base not in accordance with the invention.

**Table I**

COMPOSITIONS	1 (inv) (g)	2 (comp) (g)
1,8-bis-(2,5-diaminophenoxy)-3,5-dioxaoctane, tetrahydrochloride, monohydrate	0.39	0.39
4-aminophenol (additional oxidation base)	0.163	-
2-aminophenol (additional oxidation base)	-	0.163
3-methyl-4-aminophenol (additional oxidation base)	-	-
5-N-(β-hydroxyethyl)amino 2-methyl phenol (coupler)	0.501	0.501
5-amino-2-methylphenol (coupler)	-	-
Dyeing carrier	(*)	(*)
Water q.s.p.	100	100

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(\*) **DYEING CARRIER**

- Polyglycerolated oleyl alcohol containing 2 mol of glycerol	4.0	g
- Polyglycerolated oleyl alcohol containing 4 mol of glycerol (78% of AM)	5.7	g AM
- Oleic acid	3.0	g
- Oleyl amine containing 2 mol of ethylene oxide sold under the name ETHOMEEN O12 by the company AKZO	7.0	g
- Diethylaminopropyl laurylamino succinate sodium salt containing 55% of AM	3.0	g AM
- Oleyl alcohol	5.0	g
- Oleic acid diethanolamide	12.0	g
- Propylene glycol	3.5	g
- Ethyl alcohol	7.0	g
- Dipropylene glycol	0.5	g
- Propylene glycol monomethyl ether	9.0	g
- Sodium metabisulphite in aqueous solution containing 35% of AM	0.455	g AM
- Ammonium acetate	0.8	g
- Antioxidant, sequestering agent	q.s.	
- Fragrance, preserving agent	q.s.	
- Aqueous ammonia containing 20% of NH <sub>3</sub>	10.2	

II. **Dyeing Process**

At the time of use, each of the above compositions was mixed, weight for weight, with a 20 volume hydrogen peroxide solution having a pH of 3.

Compositions 1 and 2 were applied onto locks of permed hair containing 90% of white hair (28 g of the mixture for 3 g of hair). After 30 minutes, the hair was then rinsed with water, washed with a standard shampoo, rinsed again and dried.

III. **Tests**

After dyeing, the colored locks were exposed under a Xenon lamp emitting a UV radiation between 300 and 800 nm with a device of the type XENOTEST 150S (ATLAS). The locks were irradiated for 40 hours at radiations ranging from 300 to 800 nm, equivalent to sun power of 1250 W/m<sup>2</sup>. The relative humidity level was 60%.

The color of the locks was measured before and after the sun test.

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#### IV. Color Determination

The color of the hair was determined by using the L\*a\*b\* system, with a MINOLTA CM2002 @ spectrophotometer.

According to this system, L\* indicates the lightness. The most intense lightness value is the color of the dyed hair. The chromaticity coordinates are expressed by the parameters a\* and b\*, a\* indicating the axis of red/green shades and b\* the axis of yellow/blue shades. ΔE, which is the color variation between a colored lock and a colored lock after the suntest, is obtained from the following formula:

$$\Delta E = \sqrt{(L^* - L_0^*)^2 + (a^* - a_0^*)^2 + (b^* - b_0^*)^2}$$

wherein L\* indicates lightness, a\* and b\* are the chromaticity coordinates of the colored locks after the suntest, L<sub>0</sub>\* indicates the lightness, and a<sub>0</sub>\* and b<sub>0</sub>\* are the chromaticity of the colored locks before the suntest. The lower the value of ΔE, the more resistant is the color of the dyed hair. These results are summarized in Table II, below.

Table II

Examples	Color before the suntest			Color after the suntest			Color fading
	L*	A*	b*	L*	a*	b*	ΔE
1 (Invention)	25.4	11.7	2	30	11.9	5	5.4
2 (comparison)	28.5	10.1	-3.8	34.5	9.1	1.3	7.9

As can be seen from Table II, hair dyed with inventive composition 1 shows a much smaller variation in color after the suntest compared to hair dyed with comparative composition 2. [REDACTED]

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Accordingly, these examples show that the color of hair dyed with inventive composition 1 is unexpectedly more resistant to prolonged exposure to uv radiation than the color of hair dyed with comparative composition 2 and are thus superior thereover.

7. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: December 18<sup>th</sup> 2003

By: Marie-Pascale Audousset  
Marie-Pascale Audousset

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